Dr. Ajab Khan Kasi
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HONORS

PI: NCNN (Nanosensorics Lab) Project (58 Millions)
Balochistan Excellence Award 2017
Chief Organizer of 1st International Conference on Material Science and Nanotechnology 2018
Orient Dr. Abdul Qadeer Khan Science Award (Gold Medal)
University of Balochistan Gold Medal
Five US Patents
Best paper award in International conference on innovation challenges in multidisciplinary research and practice (ICMRP 2013), Malaysia
Best Paper award in 3M-Nano 2013 conference , China
Best presentation award in International Scientific Spring 2016 Islamabad
Satha Invention to Innovation award 2016

EDUCATION

PhD Mechatronics 2012
Asian Institute of Technology, Thailand
Dissertation : " Fabrication of anodic aluminum oxide (AAO) based minidialyzer for a hemodialysis device"

MS Semiconductors Physics 2008
Balochistan University of Engineering Information Technology and management sciences Quetta, Pakistan
Research: " Smart home system with four user interface "

PGD Computer Science 2002
University of Balochistan, Quetta , Pakistan

MSc Physics 2001
University of Balochistan , Quetta , Pakistan
Specialization: Electronics
Honors: 1st Position

TEACHING/RESEARCH EXPERIENCE

University of Balochistan, Quetta
Professor Physics Department October 2022- till date

University of St- Andrews
Post Doc, Feb 2023- Dec 2023

University of Balochistan
Chairperson Physics Department May 2016- Feb 2023

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TEACHING/RESEARCH EXPERIENCE

University of Balochistan, Quetta
Associate Professor-Physics Aug 2015– October 4- 2022

University of Balochistan, Quetta
Assistant Professor-Physics Oct 2012 – Aug 2015

University of Balochistan, Quetta
Lecturer – Physics Aug 2004 – Oct 2012

SardarBahadur Khan Women's University, Quetta, Pakistan
Lecturer (Visiting) Apr 2006 – Jul 2008

Preston University, Pakistan
Lecturer (Visiting) Apr 2002 – Jul 2004

Iqra University, Pakistan
Lecturer (Visiting) Feb 2003 – May 2007

Balochistan University of Information Technology and management Sciences Lecturer
(Visiting) Apr 2006 – July 2008

Govt Science college Quetta, Pakistan
Lecturer (Visiting) Apr 2003 – July 2006

Govt Girls college Quetta, Pakistan
Lecturer (Visiting) Apr 2003 – July 2006

Pearl Institute of Information Technology and Management Sciences
Lecturer (Visiting) Agust 2002 –July 2005

SUPERVISION

Supervised and graduated 24 MPhil students and 3 PhD students

SKILLS IN

Material synthesis
Electrochemistry
Microfabrication
Fabrication of nanostructured devices
Sensors and actuators
Nanogenerators
3D modeling and 3D printing
Electronics
Electromechanical system design

FUNDED PROJECTS

NRPU	1.8 Million	Completed
Nanotech Lab Strengthening	2.1 Million	Completed
NTFS Project	Honorary	Completed
UBRF		Completed

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PATENTS

1: US PATENT Publication No. US 2014/0202868 A1,**Title**: "System and method of anodized aluminum oxide nano-porous membrane preparation" .**Filing date**: 23 JANUARY 2013, **Publication Date:** Jul. 24, 2014 .**Inventors**: Nitin Afzulpurkar, Ajab Khan Kasi, **Original Assignee:** Asian Institute Of Technology

2: **US PATENT PUBLICATION No.** US 2014/0202950 A1, **Title**: "Anodized aluminum oxide tubular nano-porous membrane module and method of manufacture there of". **Filing date:** 23 JANUARY 2013, **Publication Date**: Jul. 24, 2014, **Inventors**: Nitin Afzulpurkar, Ajab Khan Kasi,**Original Assignee:** Asian Institute Of Technology

3: **US PATENT PUBLICATION No.** US 2014/0202952 A1, **Title**: "Multilayer anodized aluminium oxide nano-porous membrane and method of manufacture thereof", **Filing date:** 23 JANUARY 2013, **Publication Date**: Jul. 24, 2014, **Inventors**: Nitin Afzulpurkar, Ajab Khan Kasi, **Original Assignee:** Asian Institute Of Technology

4: **US PATENT PUBLICATION No.20140272280 A1**, **Title**: "Anodized aluminum oxide nanoporous membrane integrated with micro-channel and method of formation thereof. **Filing date:** 18th March 2013, **Publication date**: Sep 18, 2014, **Inventors:** Nitin Afzulpurkar, Ajab Khan Kasi. **Original Assignee:** Asian Institute Of Technology

5: US PATENT PUBLICATION No. 2014/0332392A1, **Title**: "Anodized Aluminum Oxide Template Enabled nanostructure Formation And Method Thereof", **Filing date:** 7 MAY 2013, Publication Date: Nov 13, 2014, **Inventors**: Nitin Afzulpurkar , Ajab Khan Kasi, **Original Assignee:** Asian Institute Of Technology

JOURNAL PUBLICATIONS

1. Hinna Rohi, Ajab Khan Kasi, Saima Kiran, Amin Ullah, Jafar Khan Kasi, Muzamil Bokhari: Template-assisted growth of micro-excavated PDMS layer for fabrication of free standing TENG and its application as a self-powered sensor for Oscillation, Journal of Polymer Research (2025) 32:276, https://doi.org/10.1007/s10965-025-04510-0

2.Simulation-based optimization of CdS/CdTe solar cells incorporating MXene-enhanced SnO2 buffer layer: insights from experimentally validated material properties
M Ali, Q Khan, MFU Din, JK Kasi, AK Kasi, A Ali… - Solar Energy, 2025

3. Phyto-mediated synthesis of enhanced band gap ZnO and TiO2 nanoparticles using Pisum sativum peels extract: comparison of their structural, optical, photocatalytic and antifungal characteristics, S Ahmed, JK Kasi, AK Kasi, M Bokhari, A Bilal, SW Ali - Chemical Papers, 2023

4.Shazia Bugti, Ajab Khan Kasi, Jafar Khan Kasi, "Self-powered TENG probe for scanning surface charge distribution" IOP Nanotechnology 35(6) 2023.

5. A study on the microstructural evolution of copper/aluminum composite strips fabricated by micro flexible rolling, C Wang, X Ma, L Ma, Z Jiang, M Hasan, MA Islam… - Materials Characterization, 2023

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6.Ullah, S., Din, M. F. U., Khan Kasi, J., Khan Kasi, A., Vegso, K., Kotlar, M., ... & Fakharuddin, A. (2022). Mesoporous SnO2 Nanoparticle-Based Electron Transport Layer for Perovskite Solar Cells. ACS Applied Nano Materials.

7. Bilal, A., Kasi, J. K., Kasi, A. K., Bokhari, M., Ahmed, S., & Ali, S. W. (2022). Environment friendly synthesis of nickel ferrite nanoparticles using Brassica oleracea var. capitate (green cabbage) as a fuel and their structural and magnetic characterizations. Materials Chemistry and Physics, 290, 126483.

8. Ayaz, Muhammad, et al. "Improved Dye Regeneration through Addition of a Triphenylamine Electron Donor in Iodide-Based Electrolytes for Dye-Sensitized Solar Cells." ACS Applied Energy Materials (2022).

9. Aminullah, Ajab Khan Kasi, Jafar Khan Kasi, Moiz uddin, Muzamil Bokhari, " Fabrication of piezoelectric nanogenerator using 3D-ZnO nanosheets andoptimization of charge storage system", Materials Research Bulletin, Vol. 123 (2020) 110711

10. Aminullah, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari, "Triboelectric Nanogenerator As Self-powered Impact Force Sensor For Falling Object", Current Applied Physics, 20 (2020) 137-144

11. Muhammad Latif, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari, "Strengthening of alumina tubular membrane by Al support and its application for oil-in-water stable emulsion" Microelectronic Engineering,Vol.218 (2019) 111134

12. Sumera Rafiq, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari, Amiullah, Zafar Shakoor, "Fabrication of Ag doped ZnO nanorods piezoelectric nanogenerator on cotton fabric to utilize and optimize the charging system" Nanomaterials and Nanotechnology SAGE journals,Vol.XX (2019)

13. Muhammad Ali, Jafar Khan Kasi, Ajab Khan Kasi, Muzamil Bokhari, Muhammad Latif, Muhammad Ayaz, "The efficiency of Solar Cooker in Quetta (Pakistan) Region", Polish Journal of Enviromental Studies, Vol.28 Issue.6, (2019)1-8..

14. Bibi Najma, Ajab Khan Kasi, Jafar Khan Kasi, Ali Akbar, Muzamil Ali Bokhari, Izabela RC Stroe, ZnO/AAO Photocatalytic Membranes for Efficient Water Disinfection: Synthesis, Characterization and Antibacterial Assay, Applied Surface ScienceApplied Surface Science 448 (2018) 104–114

15. Aminullah, Ajab Khan Kasi, Jafar Khan Kasi, Muzamil Bokhari "Fabrication of mechanically stable AAO membrane with improved fluid permeation properties"., Microelectronic Engineering, 187–188 (2018) 95–100

16. Ajab Khan Kasi, Nitin Afzulpurkar, Jafar Khan Kasi, AdisornTuantranont, and PaweenaDulyaseree, "Utilization of cracks to fabricate anodic aluminum oxide nanoporous tubular and rectangular membrane". Journal of Vacuum Science and Technology: B, 29, Issue. 4 (2011) D1071-D1077.

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17. Indrani Dakua, Ajab Khan Kasi, Sunandan Baruah, and Nitin Afzulpurkar, " Novel Electrode for Tapping Energy Generated using Piezotronic Nanocrystals", Journal of Nanoelectronics and Optoelectronics, Vol. 11, pp. 1–7, 2016.

18. Ajab Khan Kasi, Jafar Khan Kasi, Nitin Afzulpurkar, MahadiHasan,"Bending and Branching of Anodic Aluminum Oxide nanochannels and their applications", Journal of Vacuum Science and Technology-B, Vol.30 Issue. 1, (2012)031805

19. Ajab Khan Kasi, Jafar Khan Kasi, Nitin Afzulpurkar, Erik Bohez, AdisornTuantranont, "Continuous voltage detechement and etching (CVDE) technique for fabrication of nano-porous AAO tubular membrane", Nanoscience and Nanotechnology Letter.Vol. 4 Issue. 5, (2012) 530-536.

20. Jafar Khan Kasi, Ajab Khan Kasi, Nitin Afzulpurkar, MahadiHasan,SirapatPratontep, and AmpornPoyai"Fabrications of three dimensional anodic aluminum oxide micro shapes", Nanoscience and NanotechnolgyLetters,Vol. 4, Issue 5(2012) 537-543.

21. Mahadi Hasan,Ajab Khan Kasi, Jafar Khan Kasi, Nitin Afzulpurkar, "Anodic aluminum oxide (AAO) to AAO bonding and their application for fabrication of 3D microchannel",Nanoscience and Nanotechnology Letters' Vol. 4, Issue. 5(2012)569-573.

22. W.A.H.S.S.Wewala, Jafar Khan Kasi, Ajab Khan Kasi, Nitin Afzulpurkar, "Design, simulation and comparison of ascending and descending curvilinear microchannel for cancer cell separation from blood", Biomedical Engineering: Applications, Basis and Communications, Vol. 25, No. 4 (2013) 1350037.

23. Jafar Khan Kasi, Ajab Khan Kasi, MuzamilBokhari and Nitin Afzulpurkar, Fabrication of Zinc Oxide Nanorods based Gas Sensor, World Applied Science Journal (2014).

24. Ajab Khan Kasi, Jafar Khan Kasi, Mahadi Hasan, Nitin Afzulpurkar, SirapatPratontep, SupanitPorntheeraphat, ApirakPankiew,"Fabrication of low cost anodic aluminum oxide (AAO) tubular membrane and their application for hemodialysis",Advanced Materials Research, Vols. 550-553 (2012) 2040-2045

25. Jafar Khan Kasi, Ajab Khan Kasi, WinaddaWongwiriyapan, Nitin Afzulpurkar, PaweenaDulyaseree, Mahadi Hasan and AdisornTuantranont, "Synthesis of carbon nanotube and carbon nanofiber in nanopore of anodic aluminum oxide template by chemical vapor deposition at atmospheric pressure", Advanced Materials Research, Vol. 557-559 (2012) 544-549

26. Mahadi Hasan, Ajab Khan Kasi, Jafar Khan Kasi, Nitin Afzulpurkar, SupanitPorntheeraphat, WitsarootSripumkhai, "Fabrication of thinner anodic aluminum oxide based microchannels", Advanced Materials Research,Vols. 550-553 (2012) 2046-2050

27. Jafar Khan Kasi, Ajab Khan Kasi,NitinAfzulpurkar, Erik Bohez,AmpornPoyai, "Bending behaviour of nanochannels in the edges of anodic aluminum oxide membrane",

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Advanced Science, Engineering and Medicine, Vol.5 (2013) 1-7

28. W.A.H.S.S.Wewala, Nitin Afzulpurkar, Jafar Khan Kasi, Ajab Khan Kasi,AmpornPoyai, DhananjayW.Bodhale ,"Design and simulation of ascending curvilinear micro channel for cancer cell separation from blood", Advanced Materials Research, Vols. 557-559 (2012) 2361-2366

29. Ajab Khan Kasi, W.M. Ashraf,Jafar Khan Kasi, S. Tayyaba, and Nitin Afzulpurkar, "Low cost nano-membrane fabrication and electro-polishing system". World Academy of Science, Engineering and Technology, Vol.64 (2010) 56-58.

30. W.A.H.S.S.Wewala, Jafar Khan Kasi, Ajab Khan Kasi, Nitin Afzulpurkar, "Cell Separation Through Ascending and Descending Curvilinear Microchannels", Applied Mechanics and Materials Vols. 300-301 (2013)1649-1653

31. Jafar Khan Kasi, Ajab Khan Kasi, MuzamilBokhari, Nitin Afzulpurkar, "Synthesis of unique structures of carbon nanotube at anodic aluminum oxide template", Applied Mechanics and Materials Vol. 421 (2013) pp 319-323

32. MuzamilBokhari, Ajab Khan Kasi, Jafar Khan Kasi, Om Prakash Gujela, Nitin Afzulpurkar, " Improving Photoelectric conversion efficiency using ZnO/ ZnP composite materials", International Journal of Nanomaterials.

33. Jafar Khan Kasi, Ajab Khan Kasi and Muzamil Bokhari, Electrochemical Performance of Carbon Nanotube Based Supercapacitor, International Journal of Chemical, Nuclear, Metallurgical and Materials Engineering, 8(2014) 1343-1346.

34. Muzamil Bokhari, Muhammad Shail, Jafar Khan Kasi,and Ajab Khan Kasi Performance analysis of passive optical networks with energy saving through the integrated sleep mode, Optical Switching and Networking 21, (2016)16-30 (IF: 1.113).

35. Masood-ur-Rehman, A. K. K., Kasi, J. K., Bokhari, M., & Sohail, M. (2019). 7. Design and development of sEMG Prosthetics for recovering amputation of the human hand. Pure and Applied Biology (PAB), 8(3), 1935-1942.

36. Najeebullah, S., Kasi, A. K., & Kasi, J. K. (2019). Design, development and control of long range quadcopter. Scientific Journal of Mehmet Akif Ersoy University, 1(1), 17-21.

37. Zahid, A., Kasi, A. K., Kasi, J. K., Bokhari, S. M., & Wahid, H. A. (2018). 28. Fabrication of mini-dialyzers using Anodic Aluminum Oxide and Polysulfone membrane and their comparative study for the improvement of hemodialysis to treat renal failure patients. Pure and Applied Biology (PAB), 7(2), 643-654.

38. Muhammad Ayaz, Jafar Khan Kasi, Ajab Khan Kasi, samiullah and Mustafa Ali, "Toward Eco Green Energy: Fabrication of DSSC from Recycled Phone Screen", The Open Access Journal of Resistive Economics (OAJRE), 2016.

39. Nazir, R., Kasi, A. K., & Kasi, J. K. (2019). Fabrication of microinjector system (SIM) using anodic aluminum oxide. Scientific Journal of Mehmet Akif Ersoy University, 1(2),

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36-39.

40. Asia Siddique, Jafar Khan Kasi, Ajab Khan Kasi, Muzamil Bokhari, Muhammad Sohail, (2019). Design, Development and Performance of Soft Actuator Based orthotics for Paralysed Hand Rehabilitation, Journal of Physics and Materials Science 2(1), 07-12.

41. Rafique, S., Kasi, A. K., Kasi, J. K., Bokhari, M., & Shakoor, Z. (2021). Fabrication of Br doped ZnO nanosheets piezoelectric nanogenerator for pressure and position sensing applications. Current Applied Physics, 21, 72-79.

42. Samiullah, A. K. K., & Kasi, J. K. (2016). Growth of ZnO Nanoneedles by Thermal Oxidation of Metallic Zinc Microparticles in Air.

CONFERENCE PROCEEDINGS

1. Ajab Khan Kasi, Jafar Khan Kasi and Nitin Afzulpurkar, "New method of fabricating nanoporous anodic aluminum oxide (AAO) tubes", Physics and chemistry of surface and interface (PCSI-38), Sandiego CA, USA, January 16-20, 2011.

2. Jafar Khan Kasi, Ajab Khan Kasi, Nitin Afzulpurkar, Naveed Sheikh, "Protein sensor for the waste dialysate material", 2nd International Conference on mechanical and electronics Engineering (ICMEE), Kyoto, Japan, August 1-3, 2010.

3. Ajab Khan Kasi, Jafar Khan Kasi , Muhammad Waseem Ashraf, ShahzadiTayyaba, Nitin Afzulpurkar, and AdisornTuantranont, "Two layered novel anodic aluminum oxide nanoporous membrane", 2nd International Conference on mechanical and electronics Engineering (ICMEE), Kyoto, Japan, August 1-3, 2010.

4. Ajab Khan Kasi, Jafar Khan Kasi,ShahzadiTayyaba, Muhammad Waseem Ashraf, Nitin Afzulpurkar, and AdisornTuantranont, "Fabrication of low cost nano-porous anodic aluminum oxide membrane" international conference on automation, Robotics and Control System, Orlando, FL, USA, July 12 – 14, 2010.

5. Ajab Khan Kasi, Muhammad Waseem Ashraf, Jafar Khan Kasi, ShahzadiTayyaba, and Nitin Afzulpurkar, "Low cost nano-membrane fabrication and electro-polishing system", ICNOP 2010: International Conference on Nanotechnology, Optoelectronics and Photonics, Rome, Italy, April 28- 30, 2010.

6. Ajab Khan Kasi, Jafar Khan Kasi, Nitin Afzulpurkar, Erik Bohez, AdisornTuantranont, BanchongMahaisavariya, "Fabrication of anodic aluminum oxide (AAO) nano-porous membrane on both sides of aluminum sheet", 2nd International Conference on mechanical and electronics Engineering (ICMEE), Kyoto, Japan, August 1-3, 2010.

7. Ajab Khan Kasi, Jafar Khan Kasi, Nitin Afzulpurkar, Erik Bohez, AdisornTuantranont, BanchongMahaisavariya, "Novel anodicaluminum oxide (AAO) nanoporous membrane for wearable hemodialysis device", 3rd International Conference on Communications and Electronics (ICCE).NhaTrang, Vietnam, August 11-13, 2010.

8. Muhammad Waseem Ashraf, ShahzadiTayyaba, Nitin Afzulpurkar, Ajab Khan

Kasi, AsimNisar, and Jafar Khan Kasi, "MEMS based biomedical microfluidic device" International Conference on Automation, Robotics and Control System, Orlando, FL, USA, July 12 – 14, 2010.

9. ShahzadiTayyaba, Muhammad Waseem Ashraf, Nitin Afzulpurkar, Ajab Khan Kasi, and Jafar Khan Kasi"Design, analysis and simulation of MEMS based polymeric piezoelectric actuator for drug delivery device" International Conference on Automation, Robotics and Control System, Orlando, FL, USA, July 12 – 14, 2010.

10. Ajab Khan Kasi, Jafar Khan Kasi, "Actuation of robotic arm through artificial muscles and feedback network", 2nd Annual computational Science conference, International Islamic University, Islamabad, Pakistan. October 20-25, 2013.

11. SamiullahTareen, Ajab Khan Kasi, Jafar Khan Kasi, "Actuation of robotic leg through human leg motion sensing using microcontroller", 2nd Annual computational Science conference, International Islamic University, Islamabad, Pakistan. October 20-25, 2013.

BOOKS

1) Jafar Khan Kasi, Ajab Khan Kasi, Nitin Afzulpurkar, "Protein sensor for the waste dialysate" (2013), LAP LAMBERT Academic Publishing, Saarbrücken, GERMANY

2) Jafar Khan Kasi, W.A.H.S.S. Wewala, Ajab Khan Kasi, "Cancer Cell Separation Through Curvilinear Channel" (2013), LAP LAMBERT Academic Publishing, Saarbrücken, GERMANY.

3) Jafar Khan Kasi**,** Ajab Khan Kasi and NitinAfzulpurkar, "Characterizations and Applications of Anodic Aluminum Oxide Membrane For Fabrication of Three Dimensional Microstructures" (2016), LAP LAMBERT Academic Publishing, Saarbrücken, GERMANY

LANGUAGES

English – Speak fluently and Read / Write with high proficiency
Urdu – Native Language
Pashto – Mother Language

REFERENCE

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